

US-PAT-NO: 5691779

DOCUMENT-IDENTIFIER: US 5691779 A

TITLE: Color conversion apparatus  
that restricts the color  
reproduction range of primary  
color signals

DATE-ISSUED: November 25, 1997

INVENTOR-INFORMATION:

NAME	STATE	ZIP CODE	COUNTRY	CITY
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Fukushima; Tsumoru	N/A	N/A	JP	Kyoto

APPL-NO: 08/ 764184

DATE FILED: December 13, 1996

PARENT-CASE:

This is a divisional of application Ser. No.  
08/421,930, filed Apr. 14,  
1995, U.S. Pat. No. 5,619,280.

COUNTRY	FOREIGN-APPL-PRIORITY-DATA:
APPL-DATE	APPL-NO
JP	6-75848
14, 1994	April

US-CL-CURRENT: 348/645, 348/649 , 348/661

ABSTRACT:

The present invention provides color conversion apparatus that prevents overflow in color reproduction, changes in hue, and the deterioration of gradation to improve image quality. The present color conversion apparatus inputs to itself luminance and color difference signals, sets a reference value not less than the maximum level of the luminance signal, converts the luminance and color difference signals into primary color signals, detects the maximum value of the primary color signals for each pixel, lowers the levels of the color difference signals if the maximum value is over the reference value to locate the amplitude of the primary color signals not greater than the reference value. Further, the present color conversion apparatus inputs to itself luminance and color difference signals, sets a reference value not greater than the minimum level of the luminance signal, converts the luminance and color difference signals into primary color signals, detects the minimum value of the primary color signals for each pixel, lowers the amplitudes of the color difference signals if the minimum value is under the reference value to locate the amplitude of the primary color signals not less than the reference value.

1 Claims, 16 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 12

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Detailed Description Text - DETX (73):

Matrix means 81 performs a 2.times.2 matrix operation defined by the equation (3), and hue and saturation are adjusted by the values of four coefficients  $a_0$ ,  $a_1$ ,  $a_2$ , and  $a_3$  of the equation (3). The coefficients  $a_0$ ,  $a_1$ ,  $a_2$ , and  $a_3$  are calculated and set beforehand by a means not shown in FIG. 11 following the equation (4), where  $h$  is a factor that increases saturation; in particular, if  $h > 1$ , then saturation increases, and if  $h < 1$ , then saturation decreases. The parameter  $w$  is a factor that rotates hue; in particular, if  $w \neq 0$ , then the whole hue rotates in the chromaticity plane.